

REMARKS

OVERVIEW

Claims 1, 3, 4, 21-23, 25, 38-42, 45-47, 49, 50 and 58-65 are pending in the present application. Claims 1, 3, 4, 21-23, 25, 38-42, 45-47, 49, 50 and 58-66 are rejected. Claims 1, 21, 38, 47, 58, 62 have been amended. Claim 66 has been cancelled. The present response is an earnest effort to place all claims in proper form for allowance.

REJECTIONS UNDER 35 U.S.C. § 102

Claims 1, 4, 21-23, 25, 38-42, 46-47, and 50 are rejected under 35 U.S.C. § 102(e) as being anticipated by Rybicki et al. (U.S. Patent Application Publication No. 2001/0055353 A1).

Regarding claims 1, 21, 38, and 47, the Examiner states that Rybicki teaches a method of transmitting data comprising receiving digital bits of data from a memory unit; transforming a plurality of bits of data into a single transmission pulse, the single transmission pulse having a pulse characteristic selected from a set of three or more predetermined pulse characteristics, one of which is corresponding to the plurality of bits of data; and transmitting the single transmission pulse over a guided medium without using a carrier signal to transmit the single transmission pulse; wherein one set of the pulse characteristics corresponds to the pulse duration and wherein length of the pulse duration corresponds to number 0 through 9.

One of the patentable distinctions between the invention of claim 1 and Rybicki et al. is that Rybicki et al. uses time chips with time slots. See e.g. FIG. 4 of Rybicki et al. As shown in FIG. 4 of Rybicki et al., a single time chip 82 has four time slots 84 which allows for representation of 4 bits of data by the various pulse patterns illustrated in FIG. 4.

There is a distinct difference between representing multiple bits of data with a pulse and representing multiple bits of data with a pulse pattern within a time chip, even when the pulse pattern consists of only a single pulse. The time chip and the time slots of time chip provide context beyond the characteristics of a pulse and context which is needed in order to interpret the pulse. To assist in clarifying that distinction, independent claim 1 has been amended.

Claim 1 now requires "wherein the set of at least ten pulse characteristics correspond to pulse durations and wherein the pulse durations include ten separate pulse durations, each of the ten separate pulse durations corresponding to one of the integers 0 through 9." Rybicki et al's use of a time chip with multiple time slots does not disclose this limitation and therefore this rejection to claim 1 must be withdrawn. As claims 3-4 depend from claim 1 these rejections must also be withdrawn.

With respect to claim 21, claim 21 has been amended to require that the pulse duration is selected from a set of at least ten different predetermined pulse durations. Rybicki et al. does not disclose such a limitation. Therefore it is respectfully submitted that this rejection also be withdrawn. As claims 22-23 and 25 depend from claim 21, it is also submitted that these rejections be withdrawn.

With respect to independent claim 38, claim 38 now requires that the pulse characteristic be selected from a set of "ten" or more predetermined pulse characteristics. Rybicki et al. does not disclose such a limitation as a pulse pattern is not a pulse characteristic. Therefore, it is respectfully submitted that this rejection should be withdrawn. As claims 39-42 and 46-47 and 50 depend from claim 38, it is respectfully submitted that these rejections also be withdrawn.

Claims 58-64 have rejected under 35 U.S.C. § 102(e) as being anticipated by McCorkle et al. (U.S. Patent No. 6,700,939). McCorkle et al. is directed towards an ultra wide bandwidth system and discloses that pulse position may be used.

Claim 58 has been amended to require that the pulse characteristics be selected from a set of at least "ten" pulse characteristics based on the data, thus each pulse may correspond directly to a base 10 symbol. McCorkle et al. does not disclose such a limitation. Therefore it is respectfully submitted that this rejection be withdrawn as well as the rejections to claims 59-61.

With respect to claim 62, it is respectfully submitted that McCorkle et al. does not disclose all the limitations of claim 62. The Examiner's comments on page 9 of the Office Action are acknowledged and are appreciated. In particular, the Examiner indicates there that the previous claim language of claim 62 was being interpreted according to the broadest reasonable interpretation, and as such, claim 62 was not being interpreted so as to require the transmission of a plurality (or at least two) of the bits of data into a single transmission pulse. Therefore to clarify, claim 62 has been amended to recite "A method of transmitting data, comprising: representing a symbol encoding a plurality of bits of data using a pulse characteristic of a single time modulated ultra wideband radio-frequency pulse; transmitting the single time modulated ultra wideband radio-frequency pulse." Thus, it is respectfully submitted that claim 62's scope is now better defined to make clear that the single symbol encodes a plurality of bits and the single symbol is represented by a single pulse. Therefore, it is respectfully submitted that this rejection to claim 62 also be withdraw. As claims 63-64 depend from claim 62, it is respectfully submitted that these rejections also be withdrawn.

Claims 58-64 are rejected under 35 U.S.C. § 102(e) as being anticipated by Fullerton et al. (U.S. Patent No. 7,027,425 B1). Claim 58 has been amended and now requires "representing

a symbol comprising at least two bits of data by varying a pulse characteristic of a single time modulated ultra wideband radio-frequency pulse wherein the pulse characteristic is selected to be of one of a set of at least ten pulse characteristics based on the value of the at least two bits of data." It is respectfully submitted that this amendment to claim 58 further distinguishes over Fullerton et al, and therefore this rejection to claim 58 should be withdrawn. As claims 59-61 depend from claim 58, these rejections should also be withdrawn.

With respect to claim 62, claim 62 requires "representing a symbol encoding a plurality of bits of data using a pulse characteristic of a single time modulated ultra wideband radio-frequency pulse." The Examiner indicates that Fullerton et al. makes such a disclosure citing to col. 5, lines 36-50 (Office Action, p. 6). However, although Fullerton there discloses that a single pulse may represent more than one bit, Fullerton does not disclose that a symbol encoding a plurality of bits is represented. Therefore, it is respectfully submitted that this rejection to claim 62 should be withdrawn. As claims 63-64 depend from claim 62, it is respectfully submitted that these rejections should also be withdrawn.

REJECTIONS UNDER 35 U.S.C. § 103

Claims 3, 30, 45, 49 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Rybicki et al. in view of Atkin et al. (U.S. Patent No. 6,289,303). Claim 30 was previously cancelled and therefore that rejection is moot. The remaining rejections are respectfully traversed. Claims 1 from which claim 3 depends and claim 38 from which claim 45 and claim 47 from which claim 49 depends have been amended and now further distinguish over Rybicki et al. for the reasons previously set forth. Atkin et al. is directed towards a method and system for

supporting multiple language sets in a data processing system (Abstract) and as such does not remedy the deficiencies of Rybicki et al.

The Examiner states regarding claims 3, 30, 45, 49, that Rybicki differs from the claimed invention in that Rybicki does not specifically disclose the data is in the form of universal character encoding. However, it is well known to use universal character encoding standards for representing text or data; and therefore it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a method of universal character encoding, as taught by Atkin, for the data transmission system of Rybicki to encode different characters or data.

However, Rybicki's use of time chips and time slots would be very inefficient as it would require a very long time chip to provide for universal character encoding. Thus, combining Rybicki with Atkin in the manner suggested by the Examiner would not be obvious to one skilled in the art. It is further observed, that neither Rybicki et al nor Atkin recognize one of the fundamental advantages of the encoding scheme of the present invention. Namely that observing a pulse allows one to receive meaningful data, removing various layers typically associated with communication protocols and schemes. Thus, the rejections should be withdrawn for this independent reason.

Claim 65 is rejected under 35 U.S.C. § 103(a) as being unpatentable over McCorkle et al., in view of Campana, Jr. (U.S. Patent No. 6,198,783 B1). These rejections are respectfully traversed. The Examiner states that regarding claim 65, McCorkle differs from the claimed invention in that McCorkle does not disclose encoding the plurality of bits into a base 10 representation. Campana teaches a system for wireless serial transmission of encoded information, wherein a plurality of bits are encoded in a base 10 representation. It would

therefore have been obvious to an artisan at the time of invention to incorporate a method of base 10 encoding, as disclosed by Campana, for the encoding in the data transmission system of McCorkle to encode high amounts of information. However, neither reference takes a base 10 symbol and communicates it as a pulse. Therefore, this rejection to claim 65 should be withdrawn.

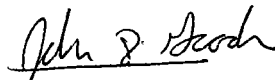
Claim 66 is rejected under 35 U.S.C. § 103(a) as being unpatentable over McCorkle et al. in view of Emelko (U.S. Patent No. 5,903,231). Claim 66 has been cancelled thereby mooted this rejection.

CONCLUSION

No fees or extensions of time are believed to be due in connection with this amendment; however, consider this a request for any extension inadvertently omitted, and charge any additional fees to Deposit Account No. 26-0084.

Reconsideration and allowance is respectfully requested.

Respectfully submitted,



JOHN D. GOODHUE, Reg. No. 47,603
McKEE, VOORHEES & SEASE, P.L.C.
801 Grand Avenue, Suite 3200
Des Moines, Iowa 50309-2721
Phone No: (515) 288-3667
Fax No: (515) 288-1338
CUSTOMER NO: 22885

Attorneys of Record

- pw -